

## **Tent Staking and Ballast Requirements**

<b>Tent A:</b>			
<b>Stakes</b>		<b>Ballast</b>	
Tent Size (sq.ft.):	0	Tent Size (sq.ft.):	0
Est. wind load (lbs):	0	Est. wind load (lbs):	0
Pullout Capacity:	0	Ballast Factor:	0
(See Chart)		Top Mounted:	1
Staking Factor:	0		
(See Below)			
<b>Correction Factor:</b>			
Embedment:	1	Concrete per cu. ft:	75 lbs
Fastening Hgt:	1	Water per gallon:	8.34 lbs
Staking Inclination:	1	Water per cu. ft:	62.43 lbs
Load Angle:	1		
Staking Diameter:	1		
Group Configuration :	1		
Stakes Required:	#DIV/0!	Ballast gal. Required:	0
		Ballast lbs. Required:	0

<b>Staking Factor</b>		<b>Ballast Factor</b>	
Pole Supported:	2	Concrete Ballast:	2
Frame Supported:	1.5	Water Ballast :	4
		Ballast Top Mounted:	1.5

$$P = P_b \times C_e \times C_f \times C_i \times C_l \times C_d < 2500 \text{ lbs.}$$

Group Configuration	Effectiveness Factor
Double Staking	1.22
Three Stakes installed in a line perpendicular to direction of pull	2.76
Three Stakes installed in a line perpendicular to direction of pull are inclined at 15 degrees	2.46
Six Stakes installed in a line perpendicular to direction of pull	4.68
Four Stakes installed in two columns and two rows and connected with a gang plate	3.48
Six Stakes installed in two columns and three rows and connected with a gang plate	4.56
<i>Note: Table 2 requires the stakes in the group to satisfy the conditions set for the baseline case</i>	

<b>Correction Factor for Embedment</b>	
Stake Embedment (in.)	C <sub>e</sub>
36	1.00
34	0.92
32	0.84
30	0.76
28	0.69
26	0.61
24	0.54

<b>Correction Factor for fastening Height</b>	
Fastening Height (in.)	C <sub>f</sub>
2	1.00
4	0.98
6	0.96
8	0.94
10	0.92
12	0.90

<b>Correction factor for Stake Inclination</b>	
Stake Inclination	C <sub>i</sub>
For stake angle from 0 to 15 degrees	1.00
For stake angle = 30 degrees	0.77

<b>Correction factor for Stake Diameter</b>	
Stake diameter (in.)	C <sub>d</sub>
1.000	1.0
1.125	1.1

<b>Correction factor for Load Angle</b>	
Angle of Pull (from horizontal)	C <sub>l</sub>
45 degrees (1H:1V)	1.00
53 degrees (2H:3V)	0.85

Consistency	Field Identification*		Pullout Capacity for Baseline Case, P (lbs.)
	Soil Resistance	Stake Penetration Resistance (Inches per blow**)	
Hard (Very Dense)	Indented with difficulty by thumbnail	less than 0.2"	2500
Very Stiff (Dense)	Readily indented by thumbnail	0.2-0.5"	1600
Stiff (Medium-Dense)	Readily indented by thumb but penetrated only with great effort	0.5-1.5"	800
Medium (Medium)	Can be penetrated several inches by thumb with moderate effort	1.5-3"	400
Soft (Loose)	Easily penetrated several inches by thumb	3-6"	200
Very Soft (Very Loose)	Easily penetrated several inches by thumb	greater than 6"	100

\*Note: Field identification is subjective. For fine-grained soils, use both the verbal description and the inches per blow to select the appropriate consistency of soil to select the baseline capacity. For coarse-grained soils, use the penetration per blow to assess soil consistency.

\*\*Note: Stake Penetration Resistance is based on the average penetration of the stake per blow with a 16 lb. sledge hammer with a normal swing.